AMENDMENTS TO THE CLAIMS:

1. (Original) An electron beam apparatus comprising a hermetic container which includes an electron source having electron emission devices and targets exposed to the electrons emitted from said electron source and further comprising a first member within said hermetic container,

wherein the value of the incident angle multiplication coefficient of secondary electron emission coefficient m_0, which is a parameter of the following formula:

$$\frac{\delta_\theta}{\delta_0}=\frac{1-\left\{1-\dfrac{m_0\cos\theta}{1+\left(m_1\right)^{-1}\times\left(m_0\cos\theta\right)^{m_2}}\right\}\exp\left(-m_0\cos\theta\right)}{1-\left\{1-\dfrac{m_0}{1+\left(m_1\right)^{-1}\times m_0^{\,m_2}}\right\}\exp\left(-m_0\right)}\times\frac{1}{\cos\theta}$$

General Formula (1)

is 10 or less,

when obtaining it from the value of secondary electron emission coefficient measured under the conditions that incident energy is 1 keV and incident angle is 0 degree as well as the values measured under the conditions that incident energy is 1 keV and incident angles θ are 20, 40, 60 and 80 degrees by conducting a regression analysis by the least square method in said general formula (1),

provided that the second electron emission coefficient of the surface of said first member has two incident energies which satisfy the second electron emission coefficient δ = 1 under the vertical incident conditions, and that when the larger energy of the above two energies satisfying δ = 1 is referred to as a second cross-point energy, the secondary electron emission coefficients for the primary electrons whose incident angles

are θ and 0 degrees are represented by

δ_θ, δ_0, respectively, and

m_1, m_2 have the values

$m_1 = 0.68273$

$m_2 = 0.86212$, respectively,

in the incident energy equal to or lower than the second cross-point energy.

2. (Canceled)

3. (Canceled)

4. (Original) The electron beam apparatus according to claim 1, wherein said first member comprises a substrate provided with an uneven geometry at least on a part of its surface and a film coating said uneven geometry portion, the thickness of said film being smaller than the height difference between the top and lowest portions of the uneven geometry of said substrate.

5. - 12. (Canceled)

13. (Original) The electron beam apparatus according to claim 1, wherein said first member is provided with a film at least on a part of its surface, said film containing at least one kind of metal, carbon, silicon, or germanium and consisting of nitride, oxide or carbide.

14. - 25. (Canceled)

26. (Original) An electron beam apparatus comprising a hermetic container which includes an electron source having electron emission devices and targets exposed to the electrons emitted from said electron source and further comprising a first member within said hermetic container,

wherein said first member has a film on its surface, the foundation of said film having an uneven geometry, the thickness of said film being smaller than the height difference between the top and lowest portions of the uneven geometry of said foundation.

27. (Original) A spacer, wherein the value of the incident angle multiplication coefficient of secondary electron emission coefficient m_0, which is a parameter of the following formula:

$$\frac{\delta_\theta}{\delta_0} = \frac{1-\left\{1-\dfrac{m_0\cos\theta}{1+(m_1)^{-1}\times(m_0\cos\theta)^{m_2}}\right\}\exp(-m_0\cos\theta)}{1-\left\{1-\dfrac{m_0}{1+(m_1)^{-1}\times m_0^{\,m_2}}\right\}\exp(-m_0)}\times\frac{1}{\cos\theta}$$

General Formula (1)

is 10 or less,

when obtaining it from the value of secondary electron emission coefficient measured under the conditions that incident energy is 1 keV and incident angle is 0 degree as well as the values measured under the conditions that incident energy is 1

keV and incident angles θ are 20, 40, 60 and 80 degrees by conducting a regression analysis by the least square method in said general formula (1), provided that the second electron emission coefficient of its surface has two incident energies which satisfy the second electron emission coefficient $\delta = 1$ under the vertical incident conditions, and that when the larger energy of said two energies satisfying said condition $\delta = 1$ is referred to as a second cross-point energy, the secondary electron emission coefficients for the primary electrons whose incident angles are θ and 0 degrees are represented by

δ_θ, δ_0, respectively, and

m_1, m_2 have the values

$m_1 = 0.68273$

$m_2 = 0.86212$, respectively,

in the incident energy equal to or lower than the second cross-point energy.

28. - 42. (Canceled)

43. (Previously Presented) An electron beam apparatus comprising a hermetic container which includes an electron source having electron emission devices and targets exposed to the electrons emitted from said electron source and further comprising a first member within said hermetic container,

wherein the value of the incident angle multiplication coefficient m_0 of secondary electron emission coefficient, which is a parameter of the following formula:

$$\frac{\delta_\theta}{\delta_0} = \frac{1-\left\{1-\dfrac{m_0\cos\theta}{1+\left(m_1\right)^{-1}\times\left(m_0\cos\theta\right)^{m_2}}\right\}\exp\left(-m_0\cos\theta\right)}{1-\left\{1-\dfrac{m_0}{1+\left(m_1\right)^{-1}\times m_0^{\ m_2}}\right\}\exp\left(-m_0\right)}\times\frac{1}{\cos\theta}$$

General Formula (1)

is 10 or less,

when obtaining it from the value of secondary electron emission coefficient measured under the conditions that incident energy is 1 keV and incident angle is 0 degree as well as the values measured under the conditions that incident energy is 1 keV and incident angles θ are 20, 40, 60 and 80 degrees by conducting a regression analysis by the least square method in said general formula (1),

provided that the second electron emission coefficient of the surface of said first member has two incident energies which satisfy the second electron emission coefficient $\delta = 1$ under the vertical incident conditions, and that when the larger energy of the above two energies satisfying $\delta = 1$ is referred to as a second cross-point energy, the secondary electron emission coefficients for the primary electrons whose incident angles are θ and 0 degrees are represented by

δ_θ, δ_0, respectively, and

m_1, m_2 have the values

$m_1 = 0.68273$

$m_2 = 0.86212$, respectively,

in the incident energy equal to or lower than the second cross-point energy,

wherein said first member is provided with an uneven geometry at least on a part of its surface, said uneven geometry being arranged at least in two directions on the surface.

44. (Previously Presented) An electron beam apparatus comprising a hermetic container which includes an electron source having electron emission devices and targets exposed to the electrons emitted from said electron source and further comprising a first member within said hermetic container,

wherein the value of the incident angle multiplication coefficient m_0 of secondary electron emission coefficient, which is a parameter of the following formula:

$$\frac{\delta_\theta}{\delta_0} = \frac{1 - \left\{1 - \dfrac{m_0 \cos\theta}{1 + (m_1)^{-1} \times (m_0 \cos\theta)^{m_2}}\right\} \exp(-m_0 \cos\theta)}{1 - \left\{1 - \dfrac{m_0}{1 + (m_1)^{-1} \times m_0^{\,m_2}}\right\} \exp(-m_0)} \times \frac{1}{\cos\theta}$$

General Formula (1)

is 10 or less,

when obtaining it from the value of secondary electron emission coefficient measured under the conditions that incident energy is 1 keV and incident angle is 0 degree as well as the values measured under the conditions that incident energy is 1 keV and incident angles θ are 20, 40, 60 and 80 degrees by conducting a regression analysis by the least square method in said general formula (1),

provided that the second electron emission coefficient of the surface

of said first member has two incident energies which satisfy the second electron emission coefficient $\delta = 1$ under the vertical incident conditions, and that when the larger energy of the above two energies satisfying $\delta = 1$ is referred to as a second cross-point energy, the secondary electron emission coefficients for the primary electrons whose incident angles are θ and 0 degrees are represented by

δ_θ, δ_0, respectively, and

m_1, m_2, have the values

$m_1 = 0.68273$

$m_2 = 0.86212$, respectively,

in the incident energy equal to or lower than the second cross-point energy,

wherein said first member is provided with an uneven geometry at least on a part of its surface, said uneven geometry constituting of the amplitudes of at least two kinds of unevenness.

45. (Previously Presented) An electron beam apparatus comprising a hermetic container which includes an electron source having electron emission devices and targets exposed to the electrons emitted from said electron source and further comprising a first member within said hermetic container,

wherein the value of the incident angle multiplication coefficient m_0 of secondary electron emission coefficient, which is a parameter of the following formula:

$$\frac{\delta_\theta}{\delta_0} = \frac{1 - \left\{1 - \dfrac{m_0 \cos\theta}{1 + \left(m_1\right)^{-1} \times \left(m_0 \cos\theta\right)^{m_2}}\right\} \exp\left(-m_0 \cos\theta\right)}{1 - \left\{1 - \dfrac{m_0}{1 + \left(m_1\right)^{-1} \times m_0^{\;m_2}}\right\} \exp\left(-m_0\right)} \times \frac{1}{\cos\theta}$$

General Formula (1)

is 10 or less,

when obtaining it from the value of secondary electron emission coefficient measured under the conditions that incident energy is 1 keV and incident angle is 0 degree as well as the values measured under the conditions that incident energy is 1 keV and incident angles θ are 20, 40, 60 and 80 degrees by conducting a regression analysis by the least square method in said general formula (1),

provided that the second electron emission coefficient of the surface of said first member has two incident energies which satisfy the second electron emission coefficient $\delta = 1$ under the vertical incident conditions, and that when the larger energy of the above two energies satisfying $\delta = 1$ is referred to as a second cross-point energy, the secondary electron emission coefficients for the primary electrons whose incident angles are θ and 0 degrees are represented by

δ_{θ}, δ_0, respectively, and

m_1, m_2 have the values

$m_1 = 0.68273$

$m_2 = 0.86212$, respectively,

in the incident energy equal to or lower than the second cross-point energy,

wherein said first member is provided with an uneven geometry at least on a part of its surface, said uneven geometry constituting of the cycles periods of at least two kinds of unevenness.

46. (Previously Presented) A spacer, wherein the value of the incident angle multiplication coefficient m_0 of secondary electron emission coefficient, which is a parameter of the following formula:

$$\frac{\delta_\theta}{\delta_0} = \frac{1 - \left\{1 - \frac{m_0 \cos\theta}{1 + (m_1)^{-1} \times (m_0 \cos\theta)^{m_2}}\right\} \exp(-m_0 \cos\theta)}{1 - \left\{1 - \frac{m_0}{1 + (m_1)^{-1} \times m_0^{\ m_2}}\right\} \exp(-m_0)} \times \frac{1}{\cos\theta}$$

General Formula (1)

is 10 or less,

when obtaining it from the value of secondary electron emission coefficient measured under the conditions that incident energy is 1 keV and incident angle is 0 degree as well as the values measured under the conditions that incident energy is 1 keV and incident angles θ are 20, 40, 60 and 80 degrees by conducting a regression analysis by the least square method in said general formula (1), provided that the second electron emission coefficient of its surface has two incident energies which satisfy the second electron emission coefficient $\delta = 1$ under the vertical incident conditions, and that when the larger energy of said two energies satisfying said condition $\delta = 1$ is referred to as a second cross-point energy, the secondary electron emission coefficients for the primary electrons whose incident angles are θ and 0 degrees are represented by

δ_θ, δ_0, respectively, and

m_1 , m_2 have the values

$m_1 = 0.68273$

$m_2 = 0.86212$, respectively,

in the incident energy equal to or lower than the second cross-point energy,

wherein said spacer is provided with an uneven geometry at least on a part of its surface, said uneven geometry being arranged at least in two directions on the surface.

47. (Previously Presented) A spacer, wherein the value of the incident angle multiplication coefficient m_0 of secondary electron emission coefficient, which is a parameter of the following formula:

$$\frac{\delta_\theta}{\delta_0} = \frac{1-\left\{1-\dfrac{m_0\cos\theta}{1+(m_1)^{-1}\times(m_0\cos\theta)^{m_2}}\right\}\exp(-m_0\cos\theta)}{1-\left\{1-\dfrac{m_0}{1+(m_1)^{-1}\times m_0^{\ m_2}}\right\}\exp(-m_0)}\times\frac{1}{\cos\theta}$$

General Formula (1)

is 10 or less,

when obtaining it from the value of secondary electron emission coefficient measured under the conditions that incident energy is 1 keV and incident angle is 0 degree as well as the values measured under the conditions that incident energy is 1 keV and incident angles θ are 20, 40, 60 and 80 degrees by conducting a regression analysis by the least square method in said general formula (1), provided that the second electron emission coefficient of its surface has two incident energies which satisfy the second electron emission coefficient $\delta = 1$ under the vertical incident conditions, and that when the larger energy of said two energies satisfying said condition $\delta = 1$ is referred to as

a second cross-point energy, the secondary electron emission coefficients for the primary electrons whose incident angles are θ and 0 degrees are represented by

δ_θ, δ_0, respectively, and

m_1, m_2 have the values

$m_1 = 0.68273$

$m_2 = 0.86212$, respectively,

in the incident energy equal to or lower than the second cross-point energy,

wherein said spacer is provided with an uneven geometry at least on a part of its surface, said uneven geometry constituting of the amplitudes of at least two kinds of unevenness.

48. (Previously Presented) A spacer, wherein the value of the incident angle multiplication coefficient m_0 of secondary electron emission coefficient, which is a parameter of the following formula:

$$\frac{\delta_\theta}{\delta_0} = \frac{1-\left\{1-\dfrac{m_0\cos\theta}{1+(m_1)^{-1}\times(m_0\cos\theta)^{m_2}}\right\}\exp(-m_0\cos\theta)}{1-\left\{1-\dfrac{m_0}{1+(m_1)^{-1}\times m_0^{\,m_2}}\right\}\exp(-m_0)}\times\frac{1}{\cos\theta}$$

General Formula (1)

is 10 or less,

when obtaining it from the value of secondary electron emission coefficient measured under the conditions that incident energy is 1 keV and incident angle is 0 degree as well as the values measured under the conditions that incident energy is 1

keV and incident angles θ are 20, 40, 60 and 80 degrees by conducting a regression analysis by the least square method in said general formula (1), provided that the second electron emission coefficient of its surface has two incident energies which satisfy the second electron emission coefficient $\delta = 1$ under the vertical incident conditions, and that when the larger energy of said two energies satisfying said condition $\delta = 1$ is referred to as a second cross-point energy, the secondary electron emission coefficients for the primary electrons whose incident angles are θ and 0 degrees are represented by

δ_θ, δ_0, respectively, and

m_1 , m_2 have the values

$m_1 = 0.68273$

$m_2 = 0.86212$, respectively,

in the incident energy equal to or lower than the second cross-point energy,

wherein said spacer is provided with an uneven geometry at least on a part of its surface, said uneven geometry constituting of the cycles periods of at least two kinds of unevenness.

49. (Previously Presented) An electron beam apparatus comprising a hermetic container which includes an electron source having electron emission devices and targets exposed to the electrons emitted from said electron source and further comprising a first member within said hermetic container,

wherein said first member is provided with an uneven geometry at least on a part of its surface, said uneven geometry being arranged at least in two directions on the surface, such that total secondary electron emissions generated by irradiating said

uneven geometry of said first member with electrons emitted from plural directions is smaller than total secondary electron emissions generated in a case of irradiating a flat surface with electrons under same conditions.

50. (Previously Presented) An electron beam apparatus comprising a hermetic container which includes an electron source having electron emission devices and targets exposed to electrons emitted from said electron source and further comprising a first member within said hermetic container,

wherein said first member is provided with an uneven geometry at least on a part of its surface, said uneven geometry constituting of the amplitudes of at least two kinds of unevenness, such that total secondary electron emissions generated by irradiating said uneven geometry of said first member with electrons emitted from plural directions is smaller than total secondary electron emissions generated in a case of irradiating a flat surface with electrons under same conditions.

51. (Previously Presented) An electron beam apparatus comprising a hermetic container which includes an electron source having electron emission devices and targets exposed to electrons emitted from said electron source and further comprising a first member within said hermetic container,

wherein said first member is provided with an uneven geometry at least on a part of its surface, said uneven geometry constituting of the cycles periods of at least two kinds of unevenness, such that total secondary electron emissions generated by irradiating said uneven geometry of said first member with electrons emitted from plural

directions is smaller than total secondary electron emissions generated in a case of irradiating a flat surface with electrons under same conditions.

52. - 90. (Canceled)

91. (Previously Presented) A flat display apparatus, comprising:

first and second substrates supported in opposition to each other, wherein a spacer having a predetermined height exists between said first and second substrates, a periphery of opposing sections of said first and second substrates are hermetically sealed to form a hermetic flat space between said first and second substrates, and an electron-emitting section is disposed at a side of said first substrate; and

a phosphor plane disposed at a side of said second substrate,

wherein an electron derived from said electron-emitting section is accelerated and irradiates onto said phosphor plane to cause an excited light emission from said phosphor plane, thereby performing a desired light emission displaying, and a surface of said spacer includes a fine unevenness, and

wherein a maximum height Rmax of the fine unevenness of the surface meets $0.05\mu m \leqq Rmax \leqq 100\mu m$.

92. (Canceled)

93. (Previously Presented) An electron beam apparatus, comprising:

a hermetic container which includes an electron source having electron emission devices and targets exposed to electrons emitted from said electron

source; and

a first member within said hermetic container,

wherein said first member is provided with an uneven geometry on at least a part of its surface, and said uneven geometry has multiple cycles, such that total secondary electron emissions generated by irradiating said uneven geometry of said first member with electrons emitted from plural directions is smaller than total secondary electron emissions generated in a case of irradiating a flat surface with electrons under same conditions.

94. (Previously Presented) An electron beam apparatus, comprising:

a hermetic container which includes an electron source having electron emission devices and targets exposed to electrons emitted from said electron source; and

a first member within said hermetic container,

wherein said first member is provided with a random uneven geometry on at least a part of its surface, said uneven geometry being arranged at least in two directions on the surface, such that total secondary electron emissions generated by irradiating said uneven geometry of said first member with electrons emitted from plural directions is smaller than total secondary electron emissions generated in a case of irradiating a flat surface with electrons under same conditions.

95. - 99. (Canceled)

100. (Previously Presented) An electron beam apparatus comprising a hermetic container which includes an electron source having electron emission devices and targets exposed to the electrons emitted from said electron source and further comprising a first member within said hermetic container,

wherein said first member is provided with an uneven geometry at least on a part of its surface, such that total secondary electron emissions generated by irradiating said uneven geometry of said first member with electrons reflected from said targets is smaller than total secondary electron emissions generated in a case of irradiating a flat surface with electrons under same conditions.

101. (Previously Presented) An electron beam apparatus comprising a hermetic container which includes an electron source having electron emission devices and targets exposed to the electrons emitted from said electron source and further comprising a first member within said hermetic container,

wherein said first member is provided with an uneven geometry at least on a part of its surface, said uneven geometry constituting of amplitudes of at least two kinds of unevenness and having an opening region which is not covered or closed.

102. (Previously Presented) An electron beam apparatus comprising a hermetic container which includes an electron source having electron emission devices and targets exposed to the electrons emitted from said electron source and further comprising a first member within said hermetic container,

wherein said first member is provided with an uneven geometry at

least on a part of its surface, said uneven geometry constituting of the cycles periods of at least two kinds of unevenness, such that total secondary electron emissions generated by irradiating said uneven geometry of said first member with electrons reflected from said targets is smaller than total secondary electron emissions generated in a case of irradiating a flat surface with electrons under same conditions.

103. (Previously Presented) An electron beam apparatus, comprising:

a hermetic container which includes an electron source having electron emission devices and targets exposed to electrons emitted from said electron source; and

a first member within said hermetic container,

wherein said first member is provided with an uneven geometry on at least a part of its surface, and said uneven geometry has multiple cycles, such that total secondary electron emissions generated by irradiating said uneven geometry of said first member with electrons reflected from said targets is smaller than total secondary electron emissions generated in a case of irradiating a flat surface with electrons under same conditions.

104. (Previously Presented) An electron beam apparatus, comprising:

a hermetic container which includes an electron source having electron emission devices and targets exposed to electrons emitted from said electron source; and

a first member within said hermetic container,

wherein said first member is provided with a random uneven geometry on at least a part of its surface, such that total secondary electron emissions generated by irradiating said uneven geometry of said first member with electrons reflected from said targets is smaller than total secondary electron emissions generated in a case of irradiating a flat surface with electrons under same conditions.

105. - 119. (Canceled)

120. (Previously Presented) An electron beam apparatus comprising a hermetic container which includes an electron source having electron emission devices and targets exposed to electrons emitted from said electron source and further comprising a first member within said hermetic container, wherein said first member is provided with an uneven geometry on at least a part of its surface, the uneven geometry being substantially comprised of a plurality of depressions, wherein there is a multiplicity of cycles of said depressions and said depressions are not covered or closed.

121. (Previously Presented) An electron beam apparatus comprising a hermetic container which includes an electron source having electron emission devices and targets exposed to electrons emitted from said electron source and further comprising a first member within said hermetic container, wherein said first member is provided with an uneven geometry on at least a part of its surface, and the uneven geometry is substantially comprised of a plurality of depressions, wherein there is a multiplicity of amplitudes of said depressions and said depressions are not covered or closed.

122. (Previously Presented) An electron beam apparatus comprising a hermetic container which includes an electron source having electron emission devices and targets exposed to electrons emitted from said electron source and further comprising a first member within said hermetic container, wherein said first member is provided with an uneven geometry on at least a part of its surface, and the uneven geometry is substantially comprised of a plurality of depressions and is formed by multiplying one cycle of said depressions with random cycles of said depressions different from the one cycle.